

Mid-Term App Proposal (due 5:00pm Friday Mar. 2, 2018)

Please submit a hardcopy of your mid-term app proposal to the Electrical and Computer Engineering front office (T&B 106) desk. Your proposal should follow the outline below and be typed, single-sided, and use a font no smaller than 11 points. Your sketches of the view and UI can be neatly hand-drawn or prototyped using Storyboard or other wireframing system such as [Justinmind](#) and attached to the proposal.

Introduction

The mid-term app should be understood to be a substantial work showcasing a student's *individual* ability to develop an iOS app. In order to maximize creativity, fun, and sense of accomplishment, students are encouraged to come up with their own ideas for the iOS app that satisfies the mid-term app component of the course. Students may wish discuss their idea(s) for the mid-term app with Prof. De Leon and obtain feedback and guidance. Apps which contribute to the Las Cruces community or NMSU campus experience are especially encouraged. Up to 1/3 of your project may use freely-available source code and third-party libraries if needed.

Proposal Outline

Portions of this outline are based on Apple's *Start Developing iOS Apps Today* document

1. Concept (0.5 - 1.0 pages) *Every great app starts with a concept. The best way to arrive at that concept is to consider the problem you want your app to solve. Great apps solve a single, well-defined problem. Key questions to consider when arriving at a concept: Who is your audience?, What is the purpose of your app?, What problem is your app trying to solve?, and What content will your app incorporate?*

2. Similar Available Apps (0.5 - 1.0 pages) *With over a million iOS apps available, it is quite likely the app you propose already exists. Since "imitation is the sincerest form of flattery" it is perfectly fine to base your mid-term app on one that already exists. How will your app be different? What new or additional features will your app add? Please include AppStore URLs to the similar apps.*

3. How the App Will Work (1.0 - 2.0 pages) *What will the user see and do when the app launches? How will the user configure the app? Will the user need to login to a server or change settings? How will the user interact with the User Interface (UI)?*

4. The Data Model (1.0 - 2.0 pages) *When you design your data model, here are some questions to keep in mind: What types of data do you need to store? Whether you're storing text, documents, large images, or another type of information, design your data model to handle that particular type of content appropriately. What data structures can you use? Determine where you can use framework classes and where you need to define classes with custom functionality. How will you supply data to the user interface?*

5. The User Interface (1.0 - 2.0 pages) *A user needs to be able to interact with the app interface in the simplest way possible. Design the interface with the user in mind, and make it efficient, clear, and straightforward. What will your UI look like? How will you present views? What controller(s) might you use: UINavigationController, UITableViewController, UITabBarController, UIPageViewController? What view elements might you use: UIButton, UISegmentedControl, UITextField, UISlider, UISwitch?*

6. Anticipated Risks (0.5 - 1.0 pages) Please identify any risks that may limit successful completion of your app. If you expect to pull data from the Internet, does a well-documented application programming interface (API) exist to make this possible? Do you expect to use a third party framework and what happens if this framework does not function as you expect?

7. Difficulty Level and Concluding Thoughts (0.5 - 1.0 pages) Please estimate the difficulty of your proposed mid-term app on a scale of 1 (easy or C/D) to 5 (difficult or A). Your estimate should be based on a number of factors including the complexity of the data model and UI; whether you are pulling data from the Internet and/or having to leverage a third-party API; whether you are using onboard sensors and features such as accelerometer, audio/video playback and recording mechanisms, gestures, GPS, etc.

Grading

The proposal will be graded on how well the mid-term project is described and explained not on how difficult the project actually will be. Your proposal should include background information, information about other similar or related apps, frameworks to be utilized, classes to be developed, object diagrams, required callbacks, description of UI including a drawing or depiction, and operation. In addition, perceived difficulties and risks should be described. Based on the proposal, the project difficulty will also be estimated on a scale of 1 (easy) to 5 (difficult).

Sample Mid-Term App Proposal

You can download sample mid-term app proposals at

<http://ece.nmsu.edu/~pdeleon/Teaching/EE443/MidTermAppProposalSample1.pdf>

<http://ece.nmsu.edu/~pdeleon/Teaching/EE443/MidTermAppProposalSample2.pdf>

App Ideas

- An app that takes attendance simply by sensing whether a student's phone is in the classroom
- Apps which can assist ECE students in their EE course(s) such as a resistor color coder/decoder or transistor part identifier or convolution tutor
- Prof. Tom Jenkins (Department of Engineering Technology and Surveying Engineering) is interested in designing an app for water pump selection for optimal irrigation
- Las Cruces/NMSU bus tracker
- App-based design tool for NMSU [business cards](#)
- App for NMSU's web-based [travel expense report system](#).
- NMSU has an archaic inventory system for tracking property. All NMSU property has a barcode. Develop an app-based version which reads this barcode and bundles meta information such as location, date/time, owner, etc. Upload the data object to your favorite cloud-hosted database.

- NMSU job fair app (upload resume, get company info, map of ballroom with companies)
- NMSU golf course app (see other golf course apps for a guide to features)
- Build a better NMSU [INSIDER app](#)
- Enter your NMSU course number and this app will lookup the building and room from the course schedule, visually show a campus map (courtesy of Google or Apple maps) with the building tagged and provide a pedestrian route.
- NMSU meetings with free food (crawl NMSU news feeds for retirement parties, student organization meetings, etc.)
- NMSU news reader
- Cafeteria food menus high school [app](#)
- Las Cruces high wind warning alert system
- Presenters hate to wait because a meeting is falling behind schedule. With this app, the meeting organizer can notify presenters via email or txt how far behind the meeting is running and what the new presentation schedule is.
- Prof. De Leon is interested in designing an app to model various colors and textures in weaving
- Drill sergeant, "One!", "Two!", "Three!", ... with slider for speed, start, stop that can be used in a workout to keep on pace with pushups and sit-ups or an app like JustIntervals.
- Apps like Brewtime solve simple problems, i.e. brewing the perfect cup of coffee, very elegantly and are models for creative app development.
- Detexify is an amazing tool for determining the \LaTeX tag for special symbols. An app could leverage a Detexify API but take advantage of the touch screen.
- [Theremin](#)
- Measure a person's stride length using the inertial measurement unit (IMU).
- HDTV calibration app uses camera and spectral analysis
- Digital clock app
- Quilt pattern designer
- An App to link students with volunteer activities. We can start with the College of Engineering—Ms. Tracey O'Neill can provide STEM Outreach volunteer opportunities and E-Council activities.